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WATER SUPPLY OUTLOOK FOR OREGON



U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

OREGON DEPARTMENT OF WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.



TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW COURSE MEASUREMENTS BY A SURVEY TEAM IN UTAH'S WASATCH RANGE.

ORC-254-10

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, 6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 841 38
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

CONSERVATION OF WATER BEGINS WITH THE

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

WATER SUPPLY OUTLOOK FOR OREGON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued

JANUARY 8, 1977

Issued by

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ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

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In Cooperation with

OREGON

DEPARTMENT

OF

WATER RESOURCES

Report prepared by

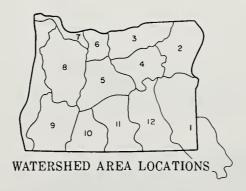
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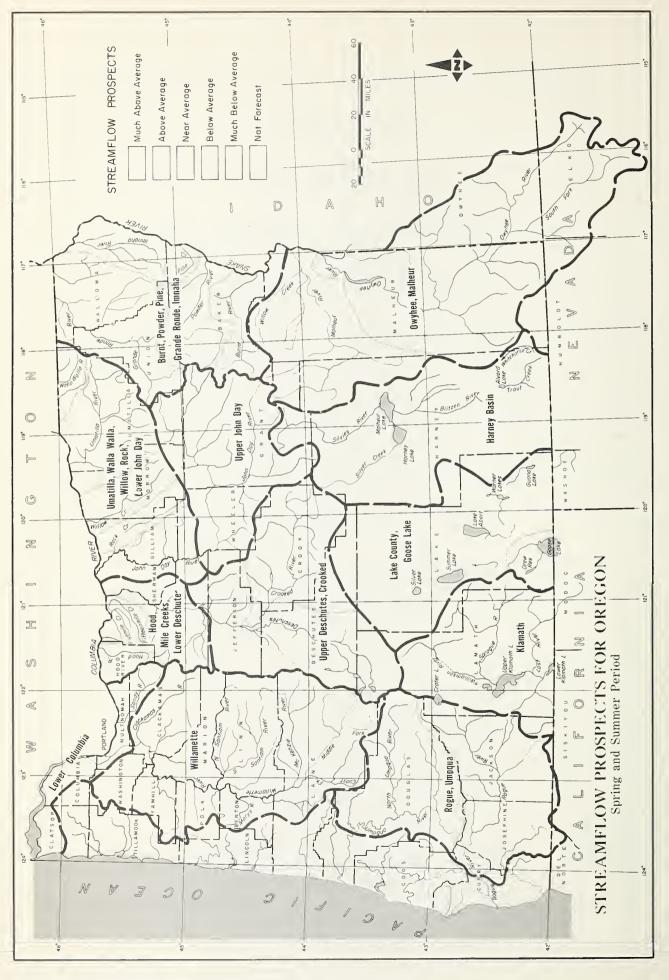
> SOIL CONSERVATION SERVICE 1220 S.W. THIRD AVENUE PORTLAND, OREGON 97204



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WATER SUPPLY OUTLOOK for OREGON

JANUARY 1, 1977

THE WATER SUPPLY OUTLOOK CURRENTLY VARIES FROM POOR TO NEAR AVERAGE FOR USERS WITH STORED WATER SUPPLIES AND POOR FOR THOSE DEPENDENT UPON DIRECT DIVERSION. THE SNOWPACK IN OREGON MOUNTAIN WATERSHEDS IS 0 TO 25% OF AVERAGE. RESERVOIR STORAGE IS NEAR NORMAL TO ABOVE.

SNOW COVER

The mountain snowpack is very poor. Measurements were all time lows on 25 of 37 key snow courses in the state. The pack is 0 to 25% of average generally. Normally 1/3 of the snowpack is on the ground by January 1. If normal accumulations were to occur between now and April 1, our snow cover would still be only 66% of normal in April. Very heavy snows are needed to remedy the situation.

PRECIPITATION .

THE PRECIPITATION SINCE SEPTEMBER HAS BEEN BELOW AVERAGE THROUGHOUT OREGON. DECEMBER WHICH IS NORMALLY VERY WET WAS EXTREMELY DRY. PRECIPITATION VARIED FROM 5 TO 10% OF AVERAGE IN THE SOUTHERN HALF OF THE STATE TO 15 TO 20% IN THE NORTHERN HALF DURING THIS MONTH.

SOIL MOISTURE

DUE TO THE LACK OF RAINFALL SINCE SEPTEMBER, MOUNTAIN SOILS ARE MUCH DRIER THAN NORMAL. THIS WILL DETRACT FROM THE SNOWMELT RUNOFF WHEN IT BEGINS IN THE SPRING.

RESERVOIR STORAGE

RESERVOIR STORAGE IS THE ONE BRIGHT SPOT IN THE OREGON WATER SUPPLY PICTURE. CARRYOVER STORAGE FROM LAST YEAR'S GOOD RUNOFF IS NEAR AVERAGE TO ABOVE AVERAGE IN MOST PRINCIPAL IRRIGATION RESERVOIRS. USERS WITH ACCESS TO THESE STORED SUPPLIES SHOULD EXPERIENCE NEAR AVERAGE TO BELOW AVERAGE WATER CONDITIONS.

STREAMFLOW

STREAMS ARE CURRENTLY STILL FLOWING AT NEARLY THE SAME RATES AS IN SEPTEMBER WHICH IS THE LOW PERIOD FOR THE YEAR. RUNOFF IN DECEMBER WAS 10 TO 30% OF NORMAL. THIS FACTOR WILL ALSO DETRACT FROM THE SPRING SNOWMELT. STREAMFLOW IS EXPECTED TO BE POOR NEXT SPRING AND SUMMER. HEAVY RAINS AND SNOWFALL WOULD BE REQUIRED DURING THE NEXT 2 TO 3 MONTHS TO RECOVER FROM THE POOR WATER CONDITIONS EXISTENT AT THIS TIME.

This report contains data furnished by the Oregon Department of Water Resources, U. S. Geological Survey, NOAA National Weather Service and other cooperators.

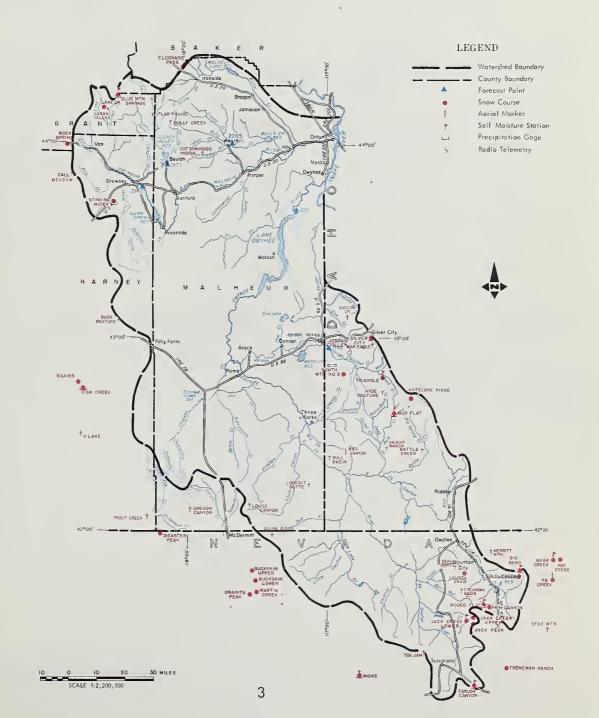


WATER SUPPLY OUTLOOK

OWYHEE, MALHEUR WATERSHEDS OREGON

GENERAL OUTLOOK

THE CURRENT WATER SUPPLY PICUURE IS POOR TO AVERAGE. NEAR AVERAGE SUPPLIES SHOULD BE AVAILABLE TO USERS WITH ACCESS TO RESERVOIRED WATER. THOSE DEPENDENT ON DIRECT DIVERSION, SHOULD HAVE POOR SUPPLIES. THE SNOWPACK IS 5% OF NORMAL. PRECIPITATION SINCE NOVEMBER 1 HAS BEEN 14% OF AVERAGE. SOIL MOISTURE IS BELOW NORMAL.



STREAMFLOW FORECASTS THIS YEAR PAST RECORD FORECAST THOUSAND ACRE FEET FORECAST BASIN, STREAM and/or FORECAST POINT Thousand Acre Feet Percent of Average Last Year Average c PERIOD Bully Creek at Warmsprings Malheur near Drewsey Note: Forecasts begin on Feb. 1, 1977. Malheur, North Fork at Beulah Owyhee Reservoir net Inflow

FORECAST DATE of LOW FLOW VALUES

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

FORECAST POINT	Julean Hill _z	Average Date of Low Flow Value RESERVOIR	Usable	Usable Storage		
			Capacity	This Year	Last Year	Average C
Owyhee near Rome	Forecasts begin in the Feb. 1 report which will be issued about Feb. 8, 1977.	Antelope Beulah Reservoir Bully Creek Owyhee Warmsprings	70.0 60.0 30.0 715.0 191.0	No Rpt. 21.5 12.2 469.2 74.8	20.0 14.2 594.2 125.2	6.2 ^b 17.8 10.4 363.2 65.6

SOIL MOISTURE

SUMMARY of SNOW MEASUREMENTS

		(COMPARISON WITH PREVIOUS Y			
RIVER BASIN	Number of THIS YEAR'S MOISTURE as PERCENT OF: Stations Last Year Average C	RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEA	AR'S SNOW PERCENT OF
Jordan Creek Malheur River Owyhee River	Measurements begin in the Feb. 1 report which will be issued about Feb. 8, 1977.	Jordan Creek Malheur River Owyhee River	2 4 3	O 5 O	Average C 0 5 0

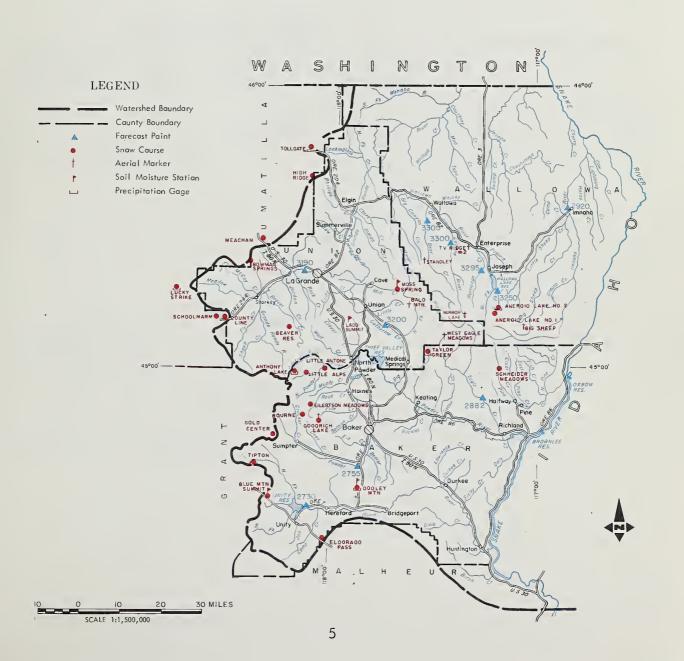
WATER SUPPLY OUTLOOK

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

OREGOIT

GENERAL OUTLOOK

THE CURRENT WATER SUPPLY PICTURE IS POOR TO AVERAGE. NEAR AVERAGE TO BELOW FOR USERS WITH ACCESS TO STORED WATER AND POOR FOR THOSE DEPENDENT ON DIRECT DIVERSION. THE MOUNTAIN SNOWPACK IS 10 TO 20% OF NORMAL. PRECIPITATION DURING NOVEMBER AND DECEMBER WAS 17% OF AVERAGE. SOIL MOISTURE IS POOR.



STREAMFLOW FORECASTS THIS YEAR PAST RECORD FORECAST THOUSAND ACRE FEET FORL CAST Thousand Acre Feet Percent of Average BASIN, STREAM and/or FORECAST POINT Average C PERIOD Last Year Bear near Wallowa Burnt near Hereford Catherine near Union Eagle Creek abv. Skull Creek Grande Ronde at La Grande Note: Forecasts begin on Feb. 1, 1977. Hurricane near Joseph Imnaha at Imnaha Lostine near Lostine Powder near Sumpter Wallowa, East Fork near Joseph

DECEDVOID CTODAGE (Thousand Ac Et) Sugar voute

SUMMARY of SNOW MEASUREMENTS

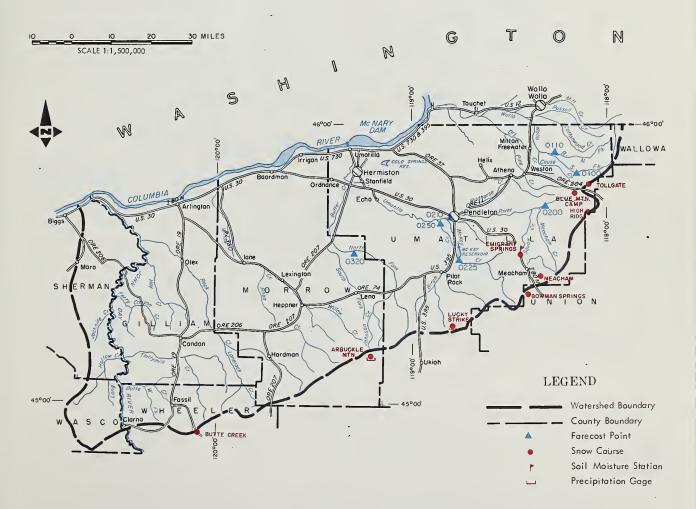
RESERVOIR STORAGE (1	nousano	AC. H.)	ENO OF M	ЮИТН	(COMPARISON WITH PREVIOUS YE			
RESERVOIR	Usable Capacity	This	sable Stora	ge	RIVER BASIN and/or	Number of Courses	THIS YE WATER AS	AR'S SNOW PERCENT OF
	Capacity	Year	Last Year_	Average ^C	SUB-WATERSHEO	Averaged	Last Year	Average C
Phillips Lake Thief Valley Unity Wallowa Lake	73.5 17.4 25.2 37.5	44.8 15.9 10.5 24.2	 17.4 11.1 26.4	 14.4 ^b 7.7 19.9	Burnt River Grande Ronde River above La Grande Powder River	3 3 2	20 10 15	20 10 10
			٠					
					SOIL MOISTURE			
					RIVER BASIN	Number of Stations	THIS YEAR as PER Last Year	'S MOISTURE CENT OF: Average C
					Burnt, Powder Grande Ronde, Catherine Creek, Immaha River			
					report	ements be which wi		

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE IS POOR. THE MOUNTAIN SNOWPACK IS 5% OF NORMAL. PRECIPITATION SINCE NOVEMBER 1 HAS ONLY BEEN 20% OF AVERAGE. SOILS ON MOUNTAIN WATERSHEDS ARE DRY. RESERVOIR STORAGE IS HALF TO TWO-THIRDS OF AVERAGE FOR JANUARY 1.



STREAMFLOW FORECASTS	THIS YEAR				PAST RECORD		
	FORE	CAST	FORECAST	THOUSAND ACRE FEET			
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feer			Last Year	Average C		
Birch Creek at Rieth McKay near Pilot Rock Umatilla near Gibbon Umatilla at Pendleton Walla Walla, South Fork near Milton	N	ote: Fore	casts begin o	n Feb. 1, 197			

FORECAST DATE of LOW FLOW VALUES

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

FORECAST POINT	Low Flow Value	Forecast Date Stream Will	Average Date of Low Flow	RESERVOIR	Usable	Usable Storage		
FORECAST FOINT	Second/Ft,	Recede to Low Flow Value	Value	RESERVOIR	Capacity	This Year	Last Year	Average C
Umatilla at Pendleton	orecasts beport whic	egin in th h will be	e Feb. 1	Cold Springs McKay	50.0 73.8	9.8 12.2	23.4 31.3	21.6 18.3
al	out Feb.	8, 1977. I	1					
				·				

SOIL MOISTURE

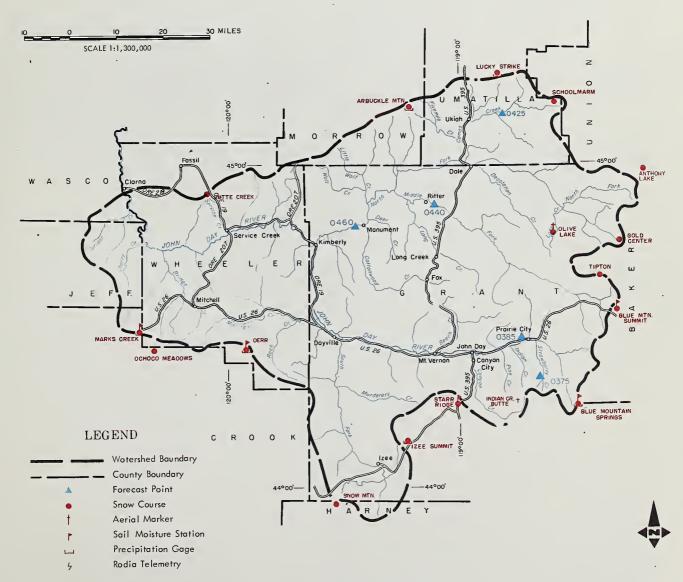
SUMMARY of SNOW MEASUREMENTS

SOIL MOISTURE				(COMPARISON WITH PREVIOUS		S	
RIVER BASIN	Number of Stations	THIS YEAR'S as PERC Last Year	S MOISTURE ENT OF: Average C	RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged		AR'S SNOW PERCENT OF Average C
Umatilla, Walla Walla, McKay Creek Measuren report w Feb. 8,	hich wi	egin in the	e Feb. 1 ued about	McKay Creek Umatilla River Walla Walla River	2 3 2	5 5 5	5 5 5 5

WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE IS POOR. THE MOUNTAIN SNOWPACK IS 10 TO 15% OF NORMAL FOR JANUARY 1. PRECIPITATION SINCE NOVEMBER 1 HAS BEEN ONLY 17% OF AVERAGE. SOIL MOISTURE IS BELOW AVERAGE.



	THIS YEA	PAST RECORD		
FORE		FORECAST	THOUSAND	ACRE FEET
Thousand Acre Feet	Percent of Average	PERIOD	Last Year	Average C
		casts begin o	n Feb. 1, 19	77.
	Thousand Acre Feet	FORECAST Thousand Percent of Average	Thousand Acre Feet Percent of Average PERIOD	FORECAST Thousand Acre Feet Percent of Average PERIOD Last Year

SOIL MOISTURE

SUMMARY of SNOW MEASUREMENTS

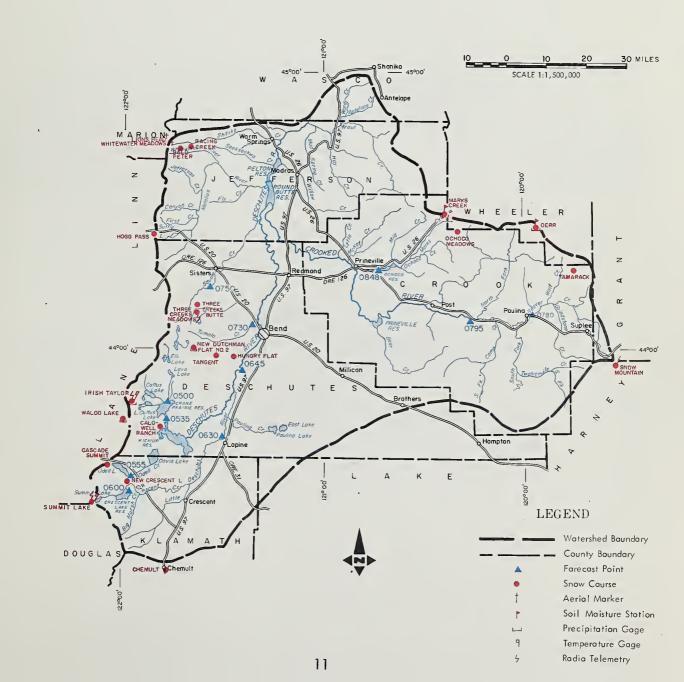
2011 MOI210KF				(COMP	ARISON WITH PREVIOUS YE	ARS)		
RIVER BASIN	Number of Stations		S MOISTURE CENT OF:		RIVER BASIN and/or	Number of Courses Averaged		AR'S SNOW PERCENT OF
	Stations	Last Year	Average C		SUB-WATERSHED	Averaged	THIS YE WATER AS Last Year	Average C
John Day above Dayville John Day, North Fork				John John	Day, North Fork Day abv. Dayville	3 2		10 15
Measurem report w Feb. 8,	hich wi	gin in the be issu	Feb. 1 ed about					

UPPER DESCHUTES, CROOKED WATERSHEDS

OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE IS POOR TO NEAR AVERAGE. POOR FOR USERS DEPENDENT UPON DIRECT DIVERSION AND NEAR AVERAGE TO BELOW FOR THOSE WITH ACCESS TO STORED SUPPLIES. RESERVOIR STORAGE IS AVERAGE TO ABOVE FOR JANUARY 1. THE MOUNTAIN SNOWPACK IS 5 TO 10% OF NORMAL. PRECIPITATION SINCE NOVEMBER 1 HAS ONLY BEEN 10% OF NORMAL. SOIL MOISTURE IS BELOW AVERAGE.



STREAMFLOW FORECASTS		THIS YEAR	R	PAST R	ECORD
	FORE	CAST	FORECAST	THOUSAND AG	CRE FEET
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feet	Percent of Average	PERIOD	PAST RECOR THOUSAND ACRE F Last Year A	Average C
Beaver Creek near Paulina Crane Prairie Reservoir total Inflow Crescent at Crescent Lake Crooked near Post Deschutes at Benham Falls Deschutes below Snow Creek Deschutes, Little near La Pine Ochoco Reservoir net Inflow Odell near Crescent Squaw near Sisters Tumalo near Bend	1 - N	ote: Fore	casts begin or	n Feb. 1, 197	7.

FORECAST DATE of LOW FLOW VALUES

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

				MESERADIK SIOKAGE (1	iiousaiiu i	10. 11.)	END OF I	IONTH
FORECAST POINT	V-1 Stream Will		Average Date of Low Flow	age Date	Usable	Usable Storage		
	C	ecede to Low Flow Value	Value	RESERVOIR	Capacity	This Year	Last Year	Average C
re	recasts begi port which w out Feb. 8,	ıill be i		Crane Prairie Crescent Lake Ochoco Prineville Wickiup	55.3 86.9 47.5 153.0 200.0	36.1 66.6 24.6 92.6 158.0	55.5 79.9 27.8 93.1 179.5	38.1 42.2 17.5 98.5 121.2

SOIL MOISTURE

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

SUIL MUISTURE				(COMPARISON WITH PREVIOUS Y	EARS)		
RIVER BASIN	Number of	THIS YEAR'S as PERC	ENT OF:	RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	WATER AS	AR'S SNOW PERCENT OF
	Stations	Last Year	Average C	SUB-WATERSHED	Averaged	Last Year	Average C
	Measurements be report which wi Feb. 8, 1977.			Crooked, Ochoco Deschutes abv. Wickiup Little Deschutes Tumalo & Squaw Crs.	1 1 2 2 2	5 10 5	5 5 10 5
		:					

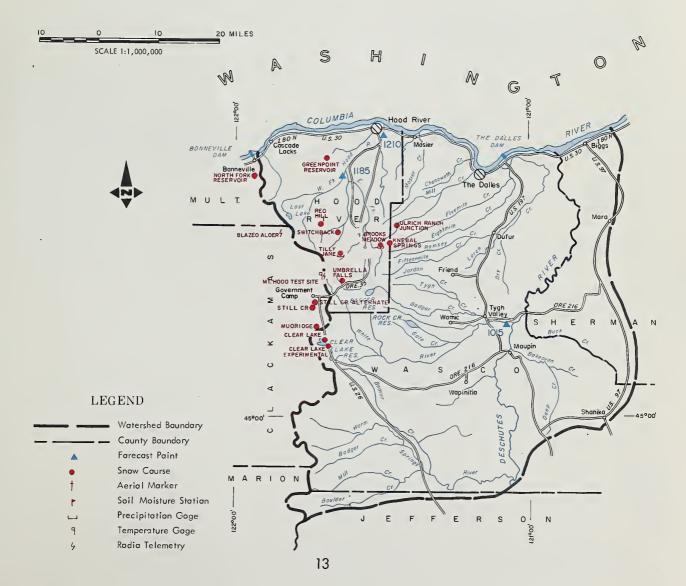
WATER SUPPLY OUTLOOK

HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE IS POOR TO BELOW AVERAGE. CLEAR LAKE (WASCO) IS ABOUT HALF FULL. THE MOUNTAIN SNOWPACK IS 15% OF AVERAGE. PRECIPITATION SINCE NOVEMBER 1 HAS ONLY BEEN 22% OF NORMAL. SOIL MOISTURE IS BELOW AVERAGE.



STREAMFLOW FORECASTS		THIS YEAR	,	PAST	RECORD
BASIN, STREAM and/or FORECAST POINT	FORECT Thousand Acre Feet	Percent of Average	FORECAST PERIOD	THOUSAND /	ACRE FEET Average C
Hood River near Tucker Bridge Hood, West Fork near Dee White below Tygh Valley	No	te: Forec	asts begin on	Feb. 1, 197	77.

FORECAST DATE of LOW FLOW VALUES

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

FORECAST POWER	Low Flow	Forecast Date Stream Will	Average Date	DECEBACIO	Usable	U	sable Stora	ge
FORECAST POINT	Second/Ft,	Recede to Low Flow Value	of Low Flow Value	RESERVOIR	Capacity	This Year	Last Year	Average
re	port which	will be i	Feb. 1	Clear Lake (Wasco)	11.9	6.9	9.0	1.5
	re	ear Branch Inflow Forecasts be report which	FORECAST POINT Value Second/Ft. Stream Will Recede to Low Flow Value	PORECAST POINT Value Second/Ft. Value Second/Ft. Value Recede to Low Flow Value Flow Value of Low Value	ear Branch Inflow Forecasts begin in the Feb. 1 report which will be issued RESERVOIR	ear Branch Inflow Forecasts begin in the Feb. 1 report which will be issued Steam Will Stream Will Stream Will Research Inflow Stream Will	ear Branch Inflow Forecasts begin in the Feb. 1 report which will be issued	ear Branch Inflow Forecasts begin in the Feb. 1 report which will be issued Steam Will Recede to Low Flow Value Flow Value RESERVOIR Capacity This Year Year Process Steam Will Recede to Low Flow Value Plow Value Capacity This Year Year Process Steam Will Steam Wil

SOIL MOISTURE

SUMMARY OF SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN		THIC ME	
and/or	Number of Courses	WATER AS	AR'S SNOW PERCENT OF
SUB-WATERSHED	Averaged	Last Year	Average C
Hood River Mile Creeks White River	2 2	20 20	15 15
	SUB-WATERSHED Hood River	SUB-WATERSHED Averaged Hood River 2 Mile Creeks White River 2	SUB-WATERSHED Averaged Last Year Hood River 2 20 Mile Creeks White River 2 20

WATER SUPPLY OUTLOOK

LOWER COLUMBIA WATERSHEDS

OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE FOR THE LOWER COLUMBIA IS MUCH BELOW AVERAGE. PRECIPITATION SINCE SEPTEMBER OVER THE COLUMBIA BASIN HAS BEEN POOR TO MUCH BELOW NORMAL. THE SNOWPACK IS O TO 20% OF AVERAGE IN MOST PARTS OF THE BASIN EXCEPT IN THE NORTHERN IDAHO AND MONTANA PORTIONS WHERE IT IS NEAR 30% OF AVERAGE. FLOW IN THE COLUMBIA AT THE DALLES IS EXPECTED TO BE ABOUT 70% OF AVERAGE IN SPRING AND SUMMER.



SUMMARY OF SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and or	Number of Courses		AR'S SNOW PERCENT OF
SUB-WATERSHED	Averaged	Last Year	Average C
Sandy River	1	20	20

STREAMFLOW FORECASTS		THIS YEAR	3	PAST F	RECORD
	FORE	CAST	FORECAST	THOUSAND A	CRE FEET
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feet	Percent of Average	PERIOD	Last Year	Average C
Columbia at The Dalles Sandy River near Marmot	No	te: Fored	asts begin on	Feb. 1, 197	7.

HISTORICAL DATA (Columbia River at The Dalles)

		STREAMFLOW ^d (1,000 A F)	REGULATED PEAK	
YEAR	APR - SEPT	APR — JUNE	MAY - JUNE	(1,000 cfs)	DATE
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23
1960	97,000	64,000	48,000	442	June 6
1961	101,400	74,400	64,000	699	June 8
1962	94,600	64,100	49,200	460	June 5
1963	87,000	56,300	46,200	437	June 18
1964	109,020	70,739	61,313	662	June 18
1965	114,137	80,024	62,477	520	June 9
1966	87,268	58,120	45,922	396 .	June 12
1967	107,771	72,408	65,112	622	June 10
1968	89,000	55,500	47,900	404	June 13
1969	112,300	85,700	63,800	515	May 15
1970	88,100	62,800	55,200	425	May 28
1971	122,900	88,400	73,700	557	May 13
1972	134,700	96,400	81,400	619	June 20
058-72 Avg.	104,300	.72,900	59,900	529	

LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)

				DRAINA	GE DISTRICT PUM	PHOUSE		
VANCOUVER	FLOW AT	SANOY	SAUVIE ISL.	SCAPPOOSE	OEER ISL.	RAINIER	BEAVER	W000501
GAGE	THE DALLES				RIVER MILES			
(Weather Bu)	(1,000 cfs)	118,9	96.0	91.0	77. 0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32 (1972)	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	943	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	897	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	853	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	811	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	771	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	733	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	697	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	662	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	628	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	595	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20 (1954)	564	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	534	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	501	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	479	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	452	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Estimated (b) 1958-72 adjusted averagel (c) 1958-72, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

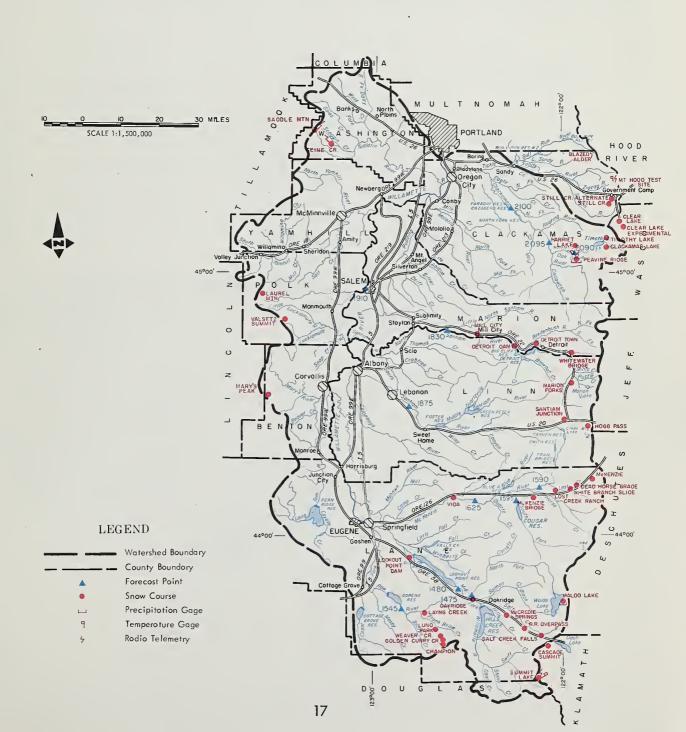
WATER SUPPLY OUTLOOK

WILLAMETTE WATERSHEDS

OREGON

GENERAL OUTLOOK

WATER SUPPLIES ARE EXPECTED TO BE POOR IN THE WILLAMETTE VALLEY FOR MANY USERS. THOSE WATER USERS WITH ACCESS TO STORED SUPPLIES CAN EXPECT NEAR AVERAGE CONDITIONS. THE SNOWPACK IS ONLY 5 TO 10% OF AVERAGE. WINTER PRECIPITATION HAS ONLY 20% OF NORMAL SO FAR. STREAMFLOW IS CURRENTLY MUCH BELOW AVERAGE FOR THIS TIME OF YEAR.



BASIN. STREAM and/or FORECAST POINT Thousand Acre Feet Thousand Acre
Clackamas at Estacada Clackamas above Three Lynx McKenzie at McKenzie Bridge McKenzie near Vida McKenzie, So. Fork near Rainbow Dak Grove Fork above Power Intake Row near Dorena Santiam, North at Mehama Santiam, South at Waterloo Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge Willamette, No. Fk. of Mid. Fk. near Oakridge
Clackamas above Three Lynx McKenzie at McKenzie Bridge McKenzie near Vida McKenzie, So. Fork near Rainbow Oak Grove Fork above Power Intake Row near Dorena Santiam, North at Mehama Santiam, South at Waterloo Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge Willamette, No. Fk. of Mid. Fk. near Oakridge

SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RECERVOIR	STORAGE (Thousand Ac.	Ft	END OF MONTH

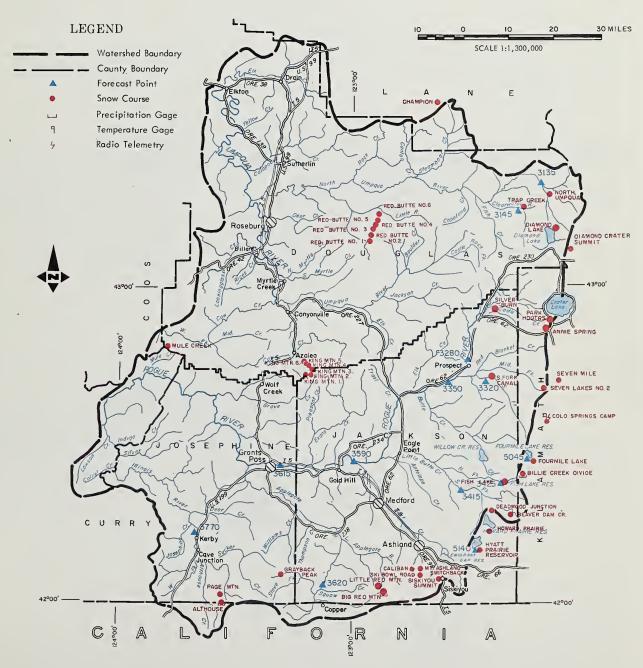
(COMPARISON WITH PREVIOUS TE	(ARS)			WESTKAOIK STOWNOF (nousunu i	10. 1 1./	LIND OF 1	1014171
RIVER BASIN and or	Number of Courses		AR'S SNOW PERCENT OF	RESERVOIR	Usable		sable Stora	ige
SUB-WATERSHED	Averaged	Last Year	Average C	KESEKVORK	Capacity	This Year	Last Year	Average C
Clackamas River McKenzie River Row River Santiam River Willamette, Mid. Fk.	2 3 3 4 3 3	5 10 30 10 10	5 10 15 5 10	Blue River Cottage Grove Cougar Detroit Dorena Fall Creek Fern Ridge Foster Green Peter Hills Creek Lookout Point Timothy Lake Henry Hagg Lake *Multiple purpose reservoirspace reserved primarily for flood runoff.	85.6* 30.0* 155.2* 299.9* 70.5* 115.0* 94.2* 30.0* 270.0* 200.0* 337.2* 61.7 53.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 39.3 22.6	0.1 0.3 5.7 15.5 0.1 0.0 0.4 26.9 8.3 8.7 61.0 26.8	1.4 b 14.4 b 25.3 6.7 0.0 b 10.4 b 1.1 b 6.6 b 15.9 b 34.4 49.1

WATER SUPPLY OUTLOOK

ROGUE, UMPQUA, WATERSHEDS OREGON

GENERAL OUTLOOK

WATER SUPPLIES ARE EXPECTED TO BE POOR TO NEAR AVERAGE. ONLY THOSE USERS WITH ACCESS TO STORED SUPPLIES CAN EXPECT AVERAGE TO BELOW AVERAGE WATER CONDITIONS THIS NEXT SPRING AND SUMMER. THE SNOWPACK IS O TO 10% OF AVERAGE. WINTER PRECIPITATION HAS ONLY BEEN 14% OF NORMAL. RESERVOIR STORAGE IS NEAR AVERAGE FOR THIS TIME OF YEAR. STREAMFLOW IS CURRENTLY MUCH BELOW NORMAL DUE TO THE LACK OF RAIN.



TREAMFLOW FORECASTS		THIS YEAR	٦	Y PAST R	ECORD
	FORE		FORECAST	THOUSAND A	CRE FEET
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feet	Percent of Average	PERIOD	Last Year	Average C
Applegate near Copper Clearwater above Trap Creek Fourmile Lake net Inflow Myatt Reservoir net Inflow Cillinois River near Kerby Cittle Butte, N. Fk. at Fish Lake nr. Lake Cr. Cittle Butte, S. Fk. near Lake Creek Rogue above Prospect Rogue, South Fork near Prospect Rogue at Raygold near Central Point Rogue at Grants Pass Umpqua, No. blw. Lemolo Res. nr. Toketee Falls	N	ote: Fore	casts begin o	n Feb. 1, 197	7.

FORECAST DATE of LOW FLOW VALUES

RESERVOIR S	TORAGE	(Thousand	Ac. Ft.)	END OF MONTH
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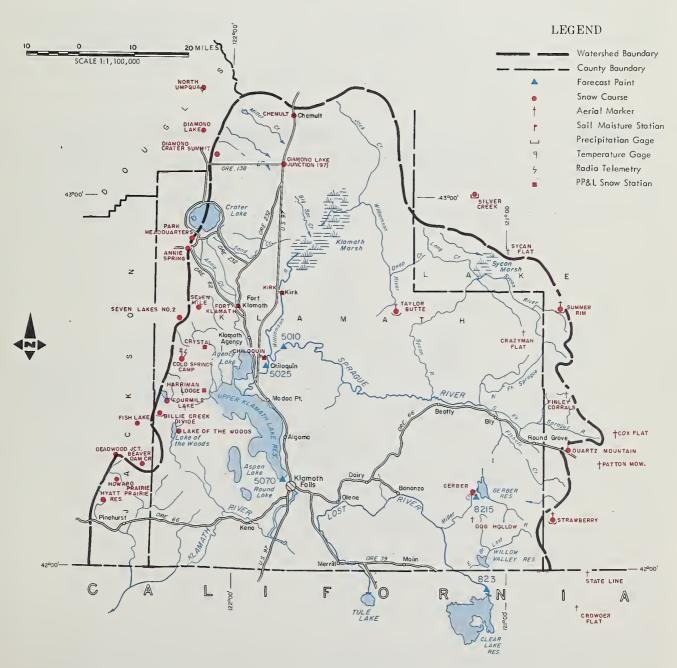
FORECAST POINT	Low Flow Value	Forecast Date Stream Will	Average Date of Low Flow	RESERVOIR	Usable		Usable St	orage
	Second/Ft.	Recede to Low Flow Value	Value	RESERVOIR	Capacity	This Year	s Last r Year	
Little Butte Creek, South Fork Rogue at Raygold	Forecasts report whi about Feb.	ch will be		Emigrant Lake Fish Lake Fourmile Lake Howard Prairie Hyatt Prairie * Average for years of record (in base period) after reconstruction.	39.0 8.0 16.1 60.0 16.1	20. 6. 9. 40. 10.	2 6.9 6 14.6 3 49.	5.0 4 7.7 5 35.3
				SUMMARY OF SNOW ME (COMPARISON WITH PREVIOUS RIVER BASIN and/or SUB-WATERSHED		er of ses	THIS YEA	AR'S SNOW PERCENT OF Average C
				Applegate Bear Creek Butte Creek Illinois River North Umpqua Rogue River	1 4 3 4		100 0 10 5	5 0 10 5

WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS

OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE VARIES FROM POOR TO NEAR AVERAGE. ONLY THOSE USERS WITH ACCESS TO STORED WATER SUPPLIES CAN EXPECT AVERAGE WATER CONDITIONS NEXT SPRING AND SUMMER. THE SNOWPACK IS 5 TO 20% OF AVERAGE. WINTER PRECIPITATION HAS ONLY BEEN 9% OF AVERAGE SO FAR. SOIL MOISTURE IS BELOW NORMAL. RESERVOIR STORAGE IS CLOSE TO NORMAL FOR JANUARY 1.



STREAMFLOW FORECASTS		THIS YEAR	,	PAST F	RECORD
	FORE	CAST	FORECAST	THOUSAND A	CRE FEET
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feet	Percent of Average	PERIOD	Last Year	Average C
Clear Lake Reservoir Inflow Gerber Reservoir Inflow Sprague near Chiloquin Upper Klamath Lake net Inflow Williamson below Sprague River	No	te: Forec	asts begin on	Feb. 1, 197	7.
					-

SOIL MOISTURE

RESERVOIR STI	DRAGE (Thousand	Ac Ft	END OF MONTH
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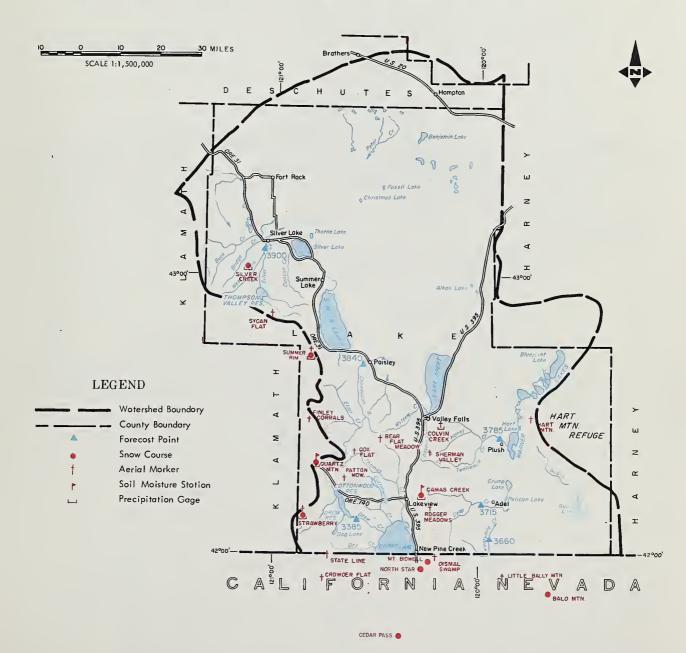
SOIL MOIOTORE					MESERANIK SINKARE (1	nousanu	MG. FL	.) END O	F MONTH
RIVER BASI	N	Number of	THIS YEAR'S		RESERVOIR	Usable		· · · · · · · · · · · · · · · · · · ·	torage
		Stations	Last Year	Average C	NESERVOIX	Capacity	This Year	Las Yea	t Averag
Upper Klamath	Measureme report wh Feb. 8, 1	ich wi	gin in the 11 be issu	Feb. 1 ed about	Clear Lake Gerber Upper Klamath Lake	440.2 94.0 584.0	212. 35. 320.	Usable Stor. Last Year 1 285.6 0 53.3 5 324.2	.3 37.
					SUMMARY OF SNOW ME (COMPARISON WITH PREVIOUS RIVER BASIN		r of T	THIS YE	AR'S SNOW
				!	and/or SUB-WATERSHED	Cours Averag	es		PERCENT O Average
					Lost River Sprague River Upper Klamath Williamson River	1 2 5 3		10 10	0 20 5 5

WATER SUPPLY OUTLOOK

LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

GENERAL OUTLOOK

LAKE COUNTY IS FACING A POOR TO NEAR AVERAGE WATER SUPPLY OUTLOOK FOR NEXT SPRING AND SUMMER. ONLY USERS WITH ACCESS TO STORED WATER CAN EXPECT NEAR NORMAL WATER SUPPLIES. THE SNOWPACK IS 20 TO 35% OF AVERAGE. THESE MEASUREMENTS EVEN INCLUDE THE SNOW WHICH FELL AS A RESULT OF THE JANUARY 2 AND 3 STORM. WINTER PRECIPITATION SO FAR HAS ONLY BEEN 7% OF NORMAL. SOIL MOISTURE IS BELOW NORMAL. STORAGE LEVELS IN DREWS AND COTTONWOOD RESERVOIRS IS NEAR NORMAL FOR THIS TIME OF YEAR.



STREAMFLOW FORECASTS		THIS YEAR	3	PAST R	ECORD
	FOR	ECAST	FORECAST	THOUSAND A	CRE FEET
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feet	Percent of Average	PERIOD	Lastitear	Average C
Chewaucan near Paisley Deep above Adel Drews Reservoir net Inflow Honey Creek near Plush Silver Creek near Silver Lake Twentymile near Adel	ŗ	Note: Fore	ecasts begin o	n Feb. 1, 197	77.

SOIL MOISTURE

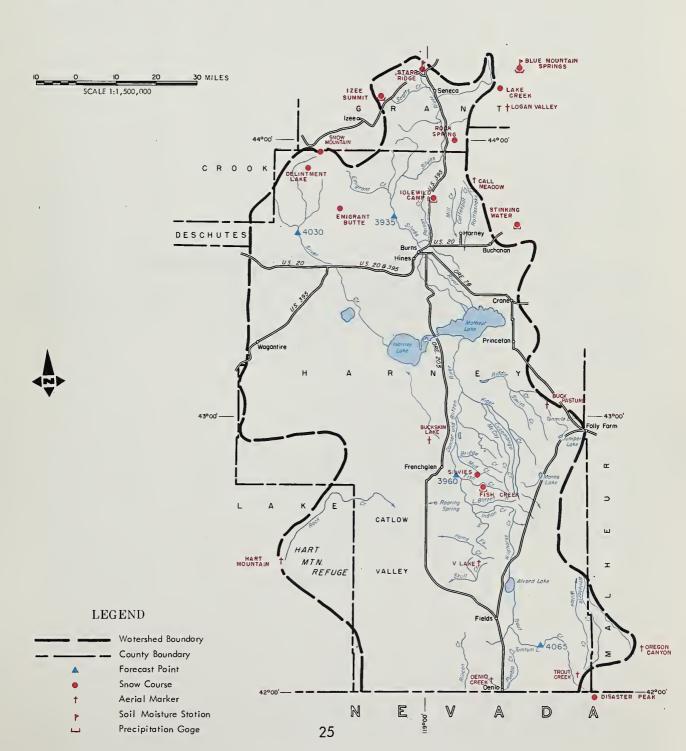
RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

UIL MUISTURE				KEZEKANIK ZINKARE (1	nousand	AC. FT.	END OF	MONTH
RIVER BASIN	Number of Stations	THIS YEAR as PER	S MOISTURE CENT OF:	RESERVOIR	Usable Capacity	This	Last	Average
	hich w	egin in th	e Feb. 1	Cottonwood Drews * Average for years of record (in base period) after reconstruction.	8.7 63.0	1.3 a 21.4 a	1.4 35.3	2.1*
				SUMMARY of SNOW ME (COMPARISON WITH PREVIOUS RIVER BASIN and or SUB-WATERSHED Chewaucan River Deep Creek Drew Creek Honey Creek		er of ses WA ged La	THIS YEAR TER AS PE SE YEAR 75 60 25 6	R'S SNOW ERCENT OF Average 20 35 40 35
				Silver Creek	2		10	5

WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

GENERAL OUTLOOK

THE WATER SUPPLY PICTURE IN THE HARNEY BASIN IS POOR. EARLY SEASON MEASUREMENTS INDICATE A SNOWPACK ONLY 10% OF NORMAL. WINTER PRECIPITATION SO FAR HAS BEEN ONLY 14% OF THE AVERAGE. SOIL MOISTURE IS ALSO MUCH BELOW NORMAL.



STREAMFLOW FORECASTS		THIS YEAR	,	PAST I	RECORD
	FORE		FORECAST	THOUSAND A	CRE FEET
BASIN, STREAM and/or FORECAST POINT	Thousand Acre Feer	Percent of Average	PERIOD	Last Year	Average C
Donner und Blitzen near Frenchglen Silver near Riley Silvies River near Burns Trout Creek near Denio	No	ote: Fore	casts begin o	n Feb. 1, 19	77.

SOIL MOISTURE

SUMMARY of SNOW MEASUREMENTS

SOIL MOISTONE				(COMPARISON WITH PREVIOUS YE	EARS)		
RIVER BASIN	Number of		MOISTURE ENT OF:	RIVER BASIN and/or	Number of Courses	WATER AS	AR'S SNOW PERCENT OF
	Stations	Last Year	Average C	SUB-WATERSHED	Averaged	Last Year	Average (
Silvies River, Silver Cr. Trout Cr., Donner und Blitzen River				Donner und Blitzen R. Silvies River	1 3	0 10	0 10
Measurem report w Feb. 8,	hich wi	gin in the 11 be issu	e Feb. 1 ued about				

(a) Estimated. (b) 1958-72 adjusted average. (c) 1958-72, 15 year average (d) Corrected to natural flow: (e) Not scheduled.

JANUARY 1, 1977

WONS	TH	IIS YE	AR \	PAST	REC.	SNOW		HIS YE	AR \	PAST	REC
DRAINAGE BASIN and/or SNOW COURSE		Snow Depth			Content hes)	DRAINAGE BASIN and/or SNOW COURSE	Date	Snow Depth	Water Cont.	Water (Conte hes)
WAINAGE DASIN GIO, OF SHOW COURSE	Survey	(In.)	(In.)	Last Yr.	Ave.C	DIVINAGE DASIN SUO, DI SUON COOKSE	Survey			Last Yr.	Ave
OWYHEE, MALHEU	R WAT	ERSHI	EDS			BURNT, POWDER, PIN IMNAHA WAT			ROND	Ε,	
Blue Mtn. Springs Pillow* Buck Pasture Buckskin, Lower (Nev.) Bull Basin (Ida.) Bully Creek Call Meadow Columbia Basin (Nev.) Cottonwood-Indian Disaster Peak (Nev.) Eldorado Pass Fawn Creek Fish Creek Fish Creek Fish Creek Fish Creek Flag Prairie Fox Creek (Nev.) Fry Canyon (Nev.)	12/28 12/28 12/28 12/28 12/28 12/28	2 e e e e e e e e e e e e e e e e e	0.6	3.0° 6.0 8.3 3.0 1.2 3.0	7.8 ⁶ 3.0 ⁶ 6.1 	Aneroid Lake #1 Aneroid Lake #2 Anthony Lake Bald Mountain (Ore.) Beaver Reservoir Big Sheeo Blue Mtn. Summit Bourne County Line Dooley Mountain Eilertson Meadows Eldorado Pass Gold Center Goodrich Lake Little Albs Little Antone Little Antone Little Antone Little Antone Alt. Luck Strike Lucky Strike Pillow* Meacham Mirror Lake Moss Spring Schneider Meadow	2/27 2/29 2/29 2/28 2/29 2/30 2/27 2/27 2/27 2/29 NO	e T e 2 e 2 4 0 e e 4 2 4 T EPOF	0.5 0.7 0.1 RT 0.1	2.7 1.6 2.1 3.2 1.2	11. 5.2 3.3 2.2 3.8 4.7 1.7
Granite Peak (Nev.) Hyde Pasture (Ida.) Jack Creek, Lower (Nev.) Jack Creek, Upper (Nev.) Jack Peak (Nev.)	12/28 12/28	e e 0 e T e		3.0	3.8 ^b	Schoolmarm · Standley Taylor Green Tipton Tipton Snow Pillow* Tollgate TV Ridge	12/30 12/28 NO R 12/27	1 e 4 4 EPOR1 6 e	0.6	5.0 6.2 10.2	1. 4. 8.
Louse Canyon Martin Creek (Nev.) Merritt Mountain (Nev.) Midas (Nev.) Mud Flat (Ida.) Oregon Canyon Quinn Ridge (Nev.)		e e e e				Arbuckle Mtn. Pillow* Blue Mountain Camp	Y WATI 12/29 NO R 12/30	T EPOR	DS 0.1	6.4	 5.
Red Canyon (İda.) Rock Spring Rodeo Flat (Nev.) 76 Creek (Nev.)	12/28 12/28 12/30	0 e	0.1 0.0 0.0	1.8 2.4 ^a 4.6	1.8 2.6 5.6	Butte Creek Summit Emigrant Springs High Ridge Pillow* Lucky Strike Lucky Strike Pillow* Meacham	12/29 12/31 12/30 NO R 12/29 NO R 12/30 12/27	O T EPOR T EPOR T	T 0.1 T 0.1	2.7 0.4 15.6 3.2 10.2	3.8.
South Mountain #2 (Ida.) Stag Mountain (Nev.) Stinking Water	12/30 12/30	0 e 0	0.0	4.8	3.9 ^b						
Succor Čreek (Ida.) Taylor Canyon (Nev.) Toe Jam (Nev.) Tremewan Ranch (Nev.) Triangle (Ida.) Trout Creek "V" Lake Vaught Ranch (Ida.) War Eagle (Ida.)	12/28	e e e e e e	0.0	1.0	1.8 ^b						

JANUARY 1, 1977

SNOW	ТН	IS YE.	AR	PAST	REC.	SNOW	TI	HIS YE	AR	PAST	REC.
DRAINAGE BASIN and/or SNOW COURSE		Snow Depth (In.)		Water (inc	Content hes) Ave C	DRAINAGE BASIN and/or SNOW COURSE	Date of Survey	Depth	Water Cont. (In.)	Water ((incl Last Yr.	ontent nes) Ave. ^C
UPPER JOHN DAY	WATER	RSHEE	os I	The state of the s		HOOD, MILE CREEKS, LOWER	DESC	HUTES	S WATE	ERSHED)S
Arbuckle Mountain Arbuckle Mt. Pillow* Blue Mountain Springs Blue Mt. Springs Pillow* Blue Mountain Summit Butte Creek Summit	12/27 12/29 NO R 12/28 12/28 12/29	T EPOR 2 2 0	0.1	11.8 6.0 8.3 2.7	11.0 6.1 3.3	Brooks Meadows Clear Lake Clear Lake (Experimental) Greenpoint Knebal Springs Mt. Hood Test Site Mud Ridge	12/28 12/28 NO R	2 e e EPOR		0.5 5.7 24.3 11.5	3.4 5.4 22.9
Lucky Strike Lucky Strike Pillow*	12/28 12/29 12/28	T e	0.6	2.8	3.0	Red Hill Still Creek Switchback Tilly Jane Ulrich Ranch Junction Umbrella Falls	12/28	e 5 e e e e	1.6	8.6	7.9
Olive Lake	12/30	e	0.2	1.2	1.9	WILLAMETTE WA	TERSH	EDS			
	1/3 12/28 12/28 NO R	4	0.1	1.9 5.0 6.2	2.2	Cascade Summit Champion Clackamas Lake Clear Lake	12/28 12/28 12/28	6 e	1.3	13.1 6.7 0.5	10.7 11.2
UPPER DESCHUTES, CR Bald Peter Caldwell Ranch	00KED	WATI e e	ERSHE	14.8		Clear Lake (Expt.) Dead Horse Grade Detroit (Town) Detroit Dam Golden Curry Creek Hogg Pass Lake Harriet Laurel Mountain Layng Creek	12/28 12/29 12/29 12/29 12/29 NO F 12/30 12/28	2 7 0 0 8 0 8 8 8 8 8 9 0 0 0 0 0 0	0.0	0.0 0.0 0.0 12.4 1.0 0.0	0.5 2.3 14.5 1.1 0.1
Chemult Alternate Derr	12/2 12/2 12/2 12/2	T T e	0.1	2.3	10.7 4.0 	Lookout Point Dam Lost Creek Ranch Lund Park Marion Forks Marys Peak	12/28 12/28 12/28 12/29	0	0.0		0.0 2.0 T 4.7
	12/30	O EPOF T 6 6 6 7 e T e	0.0 0.4 T 0.1 1.6 1.5	21.5 3.6 1.9 11.9 6.4	3.5 1.9 22.3 8.4	McCredie Springs McKenzie McKenzie Bridge Mill City Mt. Hood Test Site** Oakridge Peavine Ridge Pillow** Railroad Overpass Saddle Mountain Pillow** Salt Creek Falls Santiam Junction Seine Creek Pillow** Still Creek	NO F 12/28 NO F 12/28 12/28 1/3 12/28 12/30 1/3	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0 T 0.0 T 0.6 0.1 0.4 1.6 0.0 1.5 T 0.0 0.0	21.4 0.0 0.0 24.3 0.0 6.2 0.5 2.9 5.8 8.0 0.3 8.6 	0.6 0.2 22.9

JANUARY 1, 1977

WOHZ	TH	IS YE	AR	PAST	REC.	SNOW	TI	HIS YE	AR	PAST	
DRAINAGE BASIN and/or SNOW COURSE	Date of Survey	Snow Depth (In.)	Cont	Water ((incl Last Yr.		DRAINAGE BASIN and/or SNOW COURSE	Date of Survey	Snow Depth (In.)		Water C (inch Last Yr.	
ROGUE, UMPQUA	WATER	RSHEE)S			KLAMATH WA	ERSHE	DS			
	Survey	RSHEL e 17 T e e e 6 e T T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(ln.)	10.1 8.1 9.8 6.7 5.3 13.2 9.2 7.3 3.5 6.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	16.3 6.6 8.7 11.2 4.0 11.3 17.6 5.6 3.7 8.3 6.5 3.4 0.2 0.0 0.0 23.3 6.5 4.0 2.8 2.2 0.6 5.6 3.7 2.1	Annie Spring Billie Creek Divide Chemult Chemult Chemult (Alternate) Chiloquin (PP&L) Cold Spgs. Camp Pillow** Crazyman Flat*** Crowder Flat (Calif.) Crystal (PP&L) Diamond-Crater Summit Diamond Lake Junction (97) Dog Hollow Finley Corrals*** Fort Klamath (PP&L) Gerber Harriman (PP&L) Howard Prairie Hyatt Prairie Reservoir Kirk (PP&L) Park Headquarters Quartz Mountain Seven Mile State Line (Calif.) Strawberry Strawberry*** Summer Rim Summer Rim Summer Rim** Sycan Flat Taylor Butte Taylor Butte Taylor Butte Taylor Butte Pillow LAKE COUNTY, GOOSE Adin Mountain (Nev.) Bear Flat Meadow Camas Creek Cedar Pass (Calif.) Colvin Creek Cox Flat Crowder Flat (Calif.)	No Re 12/29 No Re 12/29 No Re 12/29 No Re 12/31 No Re 12/31 No Re 1/2 1/3 No Re 1/2 No Re	In.) IT T Port 18 12 Port 18 18 19 Port 18 10 Port 18 Port	2.0 0.1 0.1 0.1 0.0 0.0 0.1 0.1 2.3 0.9	10.1 9.8 2.3 2.8 0.0 3.5 3.6 25.5 0.8	16. 8. 4 0. 3. 11. 2. 1. 1. 1. 3. 3. 23. 2
						Dismal Swamp (Calif.) Finley Corrals*** Hart Mountain Little Bally Mtn. (Nev.) Mt. Bidwell (Calif.) North Star (Calif.) Patton Meadows*** Quartz Mountain Sherman Valley Silver Creek State Line (Calif.) Strawberry Strawberry** Summer Rim Summer Rim Summer Rim Pillow* Sycan Flat	1/3 12/28	e e e e e 12 e	0.9	0.8 G.4	

JANUARY 1, 1977

SNOW	TH	IS YE	AR `		REC.	SNOW		HIS YE		PAST	
DRAINAGE BASIN and/or SNOW COURSE		Snow Depth (In.)		Water ((incl Last Yr.	ontent nes) Ave ^{.Ĉ}	DRAINAGE BASIN and/or SNOW COURSE	Date of Survey		Water Cont. (In.)	Water ((incl Last Yr.	onternes)
HARNEY BASIN N			,								
Blue Mountain Springs Blue Mtn. Springs Pillow* Buck Pasture Buckskin Lake Call Meadows Delintment Lake Denio Creek Disaster Peak (Nev.) Emigrant Butte Fish Creek Fish Creek	12/28 12/28		0.6	6.0	6.1 						
Hart Mountain Idlewild Camp Alternate Izee Summit Lake Creek R. S. Oregon Canyon Rock Spring Silvies	12/30 12/28 12/28 12/28	1 T e T e	0.0 0.6 0.1 0.1	1.9 2.8 3.4 1.8	3.0 3.8						
Silvies Pillow* *** Snow Mountain Snow Mountain Pillow** Starr Ridge Stinking Water Frout Creek 'V" Lake	1/3 12/28 12/30		1.0	1.9	2.2	·		-			
· LOWER COLUMBIA	WATE	RSHE I	DS I								
Blazed Alder Mt. Hood Test Site Mud Ridge North Fork Reservoir Still Creek	1/3 No Re 12/28 No Re 12/28	9 port	2.7				:				
* Manometer reading** Telemetry reading*** AerialT Trace											
						_					
(a) Estimated. (b) 1958-72						·					

JANUARY 1, 1977

0	A 11	M	010	T 11	DE
V I	ш	940	1111		U L

DRAINAGE BASIN and/or ST			e (Inches)	Date of Survey	Soi	Moisture (Inc	
Name	Elevation	Depth	Capacity	Survey	Year	Year	Average C
	OWYHEE, MAL	HEUR WAT	ERSHEDS				
Bear Creek (Nev.)	7800	72	16.8	e			
Big Bend (Nev.)	6700	48	16.7	e			
Blue Mountain Spring	5900	42	16.9	12/29	5.8		
Mud Flat (Ida.)	5500 6800	48 42	12.8 11.0	e			
Rodeo Flat (Nev.) Taylor Canyon (Nev.)	6200	42	15.1	e e			
Tay for Sanyon (nev.)	0200	10	10.1	c			
BURNT,	POWDER, PINE, GRA	ANDE ROND	I E, IMNAHA I	WATERSHEDS			
Blue Mountain Summit	5100	36	16.8	12/28	8.4	9.2	8.7
Dooley Mountain	5430	36	9.2	12/28	2.6	3.2	4.0
Emigrant Springs	3925	48	22.3 18.9	1/3	17.7	70.5	10.0
Ladd Summit Moss Springs	3730 5850	48 36	25.8	12/28 e	8.9	10.5	10.0
Tollgate	5070	48	23.6	e			
IMATTI I A MA		DOCK I	ONED JOHN	DAY MATER			
	ALLA WALLA, WILLOW		1 1			11.7	11 7
Battle Mountain Summit	4340 3925	48 48	13.8	1/3 1/3	9.2 17.7	11.7	11.7
Emigrant Springs Tollgate	5070	48	23.6	1/3 e	17.7		
10119400	3373	,0	2010	Ů			
	UPPER JOHN	DAY WATI	ERSHEDS				
Battle Mountain Summit	4340	48	13.8	1/3	9.2	11.7	11.7
Blue Mountain Spring	5900	42	16.9	12/29	5.8		
Blue Mountain Summit	5100	36 24	16.8 9.0	12/28	8.4	9.2	8.7
Derr Marks Creek	5670 4540	36	14.1	e 12/28	9.5		
Snow Mountain	6300	48	16.7	e	7.5		
Starr Ridge	5150	36	10.6	12/28	7.9		
	UPPER DESCHUTES	, CROOKE	WATERSHE	OS			
Derr	5670	24	9.0	e			
Marks Creek	4540	36	14.1	12/28	9.5		
Snow Mountain	6300	48	16.7	e			
	KLAMAIH 	WATERSHE	.DS	1			
Quartz Mountain	5230	48	15.3	12/27	5.8	5.9	8.6
	LAKE COUNTY, GO	OSE LAKE	WATERSHED:	5			
Camas Creek	5720	42	14.5	1/3	10.1	12.3	11.9
Quartz Mountain	5230	48	15.3	12/27	5.8	8.4	8.6

JANUARY 1, 1977

SOIL MOISTURE

DRAINAGE BASIN and/or STATION		Profile (Inches)			Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity	Date of Survey	This Year	Last Year	Average
	HARNEY BA	SIN WATER	SHEDS				
llue Mountain Spring	5900	42	16.9	12/29	5.8		
ilvies	6900	48	16.4	e	• • • • • • • • • • • • • • • • • • • •		
now Mountain	6300	48	16.7	e 12/20	7.0		
tarr Ridge Hillow-Bald	5150 5000	36 24	10.6 6.6	12/28 NO REPO	7.9 RT		
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(a) Fatinated (b) 1050 70 - 15	(-) 1000 70	16			meml fl	(a) Nat a-L	l adulad
(a) Estimated. (b) 1958-72 adjusted avera	ige. (c) 1958-72 I	., 13 year av	erage, (a) C I	orrectea to n	sturui jiow.	(e) NOT SCA	

JANUARY 1, 1977

PRECIPITATION (Inches)			CURRENT INFORMATION PAST RECORD				
DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	Date of Reading	Precip- itation	Last Year	Average		
illie Creek Divide (Jackson County)	5310	From_ To 12/28	4.40				
lue Mt. Springs (Grant County)	5900	From					
amas Creek (Lake County)	5825	To 12/28 From 10/25	6.20				
County Line (Umatilla CountyStarkey Hdqs.)	4800	To 1/3 From 12/1	2.15	2.90			
ish Lake (Jackson County)	4865	To 12/30 From	0.00	2.90			
larks Creek (Crook-Wheeler Cos.)	4540	To 12/28 From 11/30	0.00	4.20			
lud Ridge (Clackamas County)	3800	To 12/28 From	0.20				
uartz Mt. Summit (Lake County)	6300	To 12/28 From 12/1-	7.92	31.62			
ilver Creek (Lake County)	4900	To 12/27 From 10/15	.25	3.00			
		To 12/28	.46	15.95			
		·					
(a) Estimated. (b) 1958-72 adjusted average. (c) 1958-72,							



MIMBER NAVE LICATION ELEV MARKER NAME LOCATION ELEV	NUMBER LOCATION ELEV	NUMBER NAME LOLAT ELEV	NIAMBER NAME LOCATION ELEV		
OWYHEE, MALHEUR WATERSHEDS (1) 16H3AP Midas (Nev) 18 39N 46E 7200 16G7NP Mud Flat (1da) 34 95 2W 5500 17G7NP Mud Flat (1da) 34 95 2W 5500	18E20 Eldorado Pass 20 145 38E 4600	18E23 Little Alps 10 7S 37F 6200	Willow Creek	MINIER NAME SATIO ELEV	1350 NAME LOCATION ELE.
Owyhee River 17H6a Quinn Ridge (Nev) 9 47H 41E 6300	18E18 Lake Creek 10 165 33% 5200	175 37E 5000 1707P Taylor Green 3 6S 42E 5740	1902P Arbuckle Mountain 33 45 29E 5400	21E6 Hogg Pass 24 13S 75E 4755	, 21G6a Oog Hollow 1 40S 14F 4900
16G6 Antelope Ridge (Ida) 20 85 IE 5900 15H6MP Rodeo Flat (Nev) 36 43N 53E 6800 169a 8attle Creek (Ida) 10 115 IE 5700 1653AP 55 Creek (Nev) 6 44N 58E 7100	18F1 Rock Spring 23 18S 32E 5100 18E32p* S. Fk. Willow Cr. 2 16S 37E 5500	17017 West Eagle Meadows 32 5S 43E 5500 Pine Creek	10ETP ARTHORY EURO 75 37E 7125	21E3 Santiam Junction 14 135 75 2750	20614a FinTey Corrals 11 365 16E 6000 22612 Fourmile Lake 9 365 5E 6000 2164P 6erber 12 395 13E 4850
15HIMA Bear Creek (Nev) 30 45H 56E 6700 18GPA 51 Vies 35 32S 33E 6900 15HMP Big Bend (Nev) 25 45N 39E 6700 16GIP South Mountain No.2(Ida) 10 85 5 H 6320	Stinking Mater 34 213 372 4000	1708 5chneider Meadows 35 6\$ 45E 5400	UPPER JOHN DAY WATERSHEDS (4) Upper John Day River	Millewater Bridge 20 105 7E 2175 McKenzie River	22G26 Howard Prairie 32 385 4E 4500 22G16 Hyatt Prairie Reservoir 15 395, 3E 4900
17H1 Buckskin, Upper (Nev) 11 43N 59E 7800 15H199 5tag Mountain (Nev) 32 41N 58E 7800 16G109 8ull Basin (Ida) 29 125 5W 5650 15H099 Succor Creek (Ida) 25 35 5W 6100	BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS (2)	Grande Ronde River 1701 Aneroid Lake No. 1 16 45 45£ 7480	1902P Arbuckle Mountain 33 45 295 5400	21EB	22615
18H1 Oisaster Peak (Nev) 8 47H 34E 6500 16H7a Toe Jam (Nev) 29 40N 50E 7700 15H8 Tremewan Ranch (Nev) 29 30N 50E 7700 16H8a Fawn Creek (Nev) 2 45N 52E 7000 15H6 Tremewan Ranch (Nev) 9 30N 50E 7700	Burnt River	18E1P Anthony Lake 18 7S 37E 7125	18E13M Blue Mountain Summit 6 12S 36E SOOR	21E7 McKenzie 8ridge 13 165 7E 1956 22E6 Vida 13 165 SE 1372	22G11 Seven Lakes No. 2 26 33S 5E 6200 22G33 Seven Mile 20 33S 6E 5725
18G2PA Fish Creek 4 4 335 33E 7900 16G4MA Triangle (1da) 25 7S 3W 5150 15H2 Fox Creek (Nev 33 45N 58E 6800 1865a Trout Creek 10 415 38E 7800	18E13M Blue Mountain Summit 6 125 36E 5098	1809 Beaver Reservoir 8 55 37E 5150 1808P County Line 28 45 34F 4800	19E3MP Derr 14 13S 23E 5670	21E9 White Branch Slide 15 165 2E 800 15 165 7E 2700	20G9AP 5trawberry 4 40S 16E 5760 20G2AP Summer Rim 23 335 16E 57100
15H5 Gold Creek (Nev) 31 45N 56E 6600 16G12a Vaught Ranch (Ida) 10 11S 1W 5950 17H4 Granite Peak (Nev) 22 44N 39E 7800 16G13a War Eagle (Ida) 20 5S 3W 7700	18E8 Gold Center 21 9S 36E 5340	1806P	19624a Indian Cr. outle 3 133 33E 6550	Middle Fork Willomette River 22F3 Cascade Summit 7 235 6F 4880	20613a Sycan Flat 25 315 14E 5500 2163P Taylor Butte 21 33S 11E 5100
16HM Jack Creek, Lower (Nev) 18 42N 53E 6800 16H24 Jack Creek, Upper (Nev) 9 42N 53E 7250 Mg/heur River	Tipton 34 10S 35E 5100	1706M Moss Spring 28 3S 41E 5850 1807 Schoolmarm 28 4S 34E 4775	20E1MP Marks Creek 2S 12S 19E 4540 20E2 Ochoco Meadows 21 13S 20E 5200	22F6 McCredie Springs 36 215 47 750	Pocific Power and Light Campany's Snow Stations
16H4 Jack Peak (Nev) 28 42N 53L 8420 1763m Jordan Valley 2 30S 46E 4390 18E16MP Blue Mountain Springs 21 15S 35E 5900	18E1P Anthony Lake 18 75 37E 7125	1707P Taylor Green 3 6S 42E 5740 1803 Tollgate 32 4N 38F 5070	18E7a Olive Lake 14 95 34E 6000 1807 Schoolmarm 28 45 34E 4775 19F1* Snow Mountain 1 195 26E 6220	22F5 Railroad Overpass 21 225 5E 2750 22E4 5alt Creek Falls 32 225 5E 2750	3 Chiloquin (PP&L) 34 345 7E 4187 4 Crystal (PP&L) 26 345 6E 4200
1766a Lookout Butte 2 40S 47E 5650 18E21a Bully Creek 11 17S 37E 5300 17G4a Louse Canyon 27 40S 44E 6440 18F7a Call Meadows 29 20S 33F 5340	17EIMP 000ley Moustain 32 115 40F 5430	1/016a TV Ridge No. 2 12 25 43E 7000	18E9P Tipton 34 105 35% 5100	22F14* 5ummit Lake 32 225 51E 4000 22F2P Waldo Lake 15 24S 6E 5600	5 Fort Klamath (PP&L) 22 33S 7-E 4150 8 Harriman Lodge (PP&L) 3 365 6E 4200 6 Kirk (PP&L) 1 335 7E 4533
17H3 Martin Creek (Nev) 18 441 40E 6700 17F2a Cottonwood-Indian 3 19S 39E 4320	18E6A Goodrich Lake 21 9S 36E 5340	1mnoha River 1701 Aneroid Lake No. 1 16 45 45F 74R0	UPPER DESCHUTES, CROOKED WATERSHEDS 151	Coast Fork Willamette River	
	1/012m Ladd 5ummît 5 55 39E 3730	1701 Aneroid Lake No. 1 16 4S 45E 7480 1702P Aneroid Lake No. 2 16 4S 45E 7300 17014a Big Sheep 33 4S 46E 6200	Upper Deschutes River	22F10 Golden Curry Creek 1 23S 1E 3136 22F13 Layng Creek R 5	LAKE COUNTY COOSE LUIS WATER
		UMATILIA, WALLA WALLA, WILLOW, ROCK,	21F8 Caldwell Ranch 30 215 BE 4400 22F3 Cascade Summit 7 235 GE 4880 21F11 Chemult 21 275 BE 4760	22F12 Lund Park 22 225 IE 1740 22F11 Weaver Creek 35 225 IE 2440	LAKE COUNTY, GOOSE LAKE WATERSHED5 Goose Lake
24 23 22 21 20 19	18 17 16	LOWER JOHN DAY WATERSHEDS (3) Umotillo River	21E6 Hogg Pass 24 13S 7:E 475S 21F4 Hungry Flat 29 18S 11E 44400	Mary's River	20G15a Bear Flat Meadow 27 365 19E 5900 20GBMP Camas Creek 5 395 21E 5720
C W A S H I N G	T 0 ×	1902P Arbuckle Mountain 33 4S 29E 5400	21F6* Irish-Taylor 25 205 6E 5500 21E25a Lionshead 1 10S 8E 5400 21F10 New Crescent Lake 11 245 6E 4800	23E1 Mary's Peak 21 12S 7W 3620	2011A Cox Flat 16 37S 18E 5750 20H2a Crowder Flat (Cal) 30 47N 11E 5200 20H3a Oiswal Swamo (Cal) 31 48N 16E 7200
	· /	20E4 Butte Creek Summit 5 85 22E 3930 1804M Emigrant Springs 29 1N 35E 3925	21E16 New Outchman Flat #2 21 185 9E 6400 21E23 Racing Creek 15 105 9F 4800 22F14* Summit Lake 33 245 5:E 5600	Luckiamule River	20617a Patton Meadow 28 385 18E 6800 2066MP Quartz Mountain 2 385 18E 5320 20619a Roger Meadow 21 395 21E 6500
All the state of t	Congression of the Congression o	1806P Lucky Strike 28 3S 32E 5050 1805 Meacham 24 1S 35E 4300	21F3 Tangent 28 185 10E 5400 21F15 Three Creeks Butte 27 165 9F 5200	23E3 Valsetz Sumit 6 8S 7H 3000 3 95 7W 2600	20Hla State Line (Cal) 21 48N 11E 5750 20G9AP Strawberry 4 405 16E 5760
Umotillo, Wollo Wallo	Burn, Powder Pine	1803 Tollgate 32 4N 38E 5070 Wallo Walla River	21E13* Three Creeks Meadows 34 165 9E 5650 22F2P	2302* Seine Creek 34 1N 5W 2000	Abert Loke
D Willow, Rock, Lower John, Doy	Grande Ronde, Imnoho	18016 Blue Mountain Camp 35 4N 37E 4300	Crooked River	23D1* 5addle Mountain 25 1N 6N 3250	20G15a Bear Flat Meadow 27 36S 19E 5900 20G18ap Colvin Creek 12 36S 21E 6550
21099	1800 1700 1700 1700 1700 1700 1700 1700	1803 Tollqate 32 4N 38E 5070	19E3MP 0err 14 13S 23E 5670 20E1MP Marks Creek 2S 12S 19E 4540	ROGUE, UMPQUA WATERSHED5 191 Rogue River	20G1A Cox Flat 16 375 18E 5750 20G1Aa Finley Corrals 11 365 16E 6000 20G6MP Quartz Hountain 2 385 16E 5320
Mile Creeks	000 17012 07014	LEGENO	20E2 Ochoco Meadows 21 135 20E 520 19F1* Snow Mountain 1 19S 26E 6220 19E4 Tamarack 8 155 25E 4800	23G4P Althouse 17 415 7H 4S30 22G6 Annie Spring 19 315 6E 6018	20G10a Snerman Valley 15 37S 21E 6600
Deschutes	17000	1902 SNOW COURSE ONLY 1902M SNOW COURSE AND SOIL MOISTURE 1902MA SNOW COURSE, SOIL MOISTURE AND AERIAL MARKER	7 130 252 4000	22G28 Beaver Dam Creek 1 385 4E 5100 22G21P Big Red Mountain 31 40S 1W 6250	Summer Lake 20G2AP 5ummer Rim 23 335 16E 7100
The state of the s	(8E7° 18E6 - 18E	1902A SNOW COURSE AND AERIAL MARKER 1902m SOIL MOISTURE ONLY 1902a AERIAL MARKER ONLY	HOOD, MILE CREEK5, LOWER DESCHUTES WATERSHEDS (6) Hood River	22G3O Caliban 16 405 1E 6500 22G27	5ilver Lake
Willomette John Do	18613	1902P SNOW COURSE AND PRECIPITATION GAGE 1902P PRECIPITATION GAGE ONLY 1902P RADIO TELEMETRY		22F19 Oiamond-Crater 5ummit 3 29S 6E 5800 22G14P Fish Lake 3 37S 4E 4665 22G12 Fournile Lake 9 365 5E 6000	21F2P Silver Creek 25 & 26 29S 13E 4900 20G13a 5ycan Flat 25 31S 14E 5500
201	Parents Company (1997)		2106P 8rooks Meadows 2 2 5 10£ 4300 2101 Greenpoint Reservoir 27 2N 9£ 3200 21020 Knebal Springs 31 15 11£ 3850	2363 Grayback Peak 9 '405 5W 6000 22626 Howard Prairie 32 385 4E 4500 22616 Hyatt Prairie Reservoir 15 395 3F 4900	Worner Lake
22E6 21E1 21E1 21E13	Done Tegas	1	2108* Phlox Point 7 3S 9E 5400 2104 Red Hill 20 1S 9E 4400	22G22 Little Red Mountain 25 405 2W 6S00 22G31 Mt. Ashland Switchback 15 405 1E 6400	2068MP Camas Creek 5 39S 21E 5720 20H3a Dismal Swamp (Cal) 31 48N 16E 7200 1961a Hart Mountain 1 25E 25E 635C
213,9279	18821		2109 Still Creek 25 35 8°E 3670 21028 Switchback 28 15 9E 3255 2107P Tilly Jane 15 25 9E 6000	23G14 Mule Creek 8 32S 9W 3680 23G5 Page Mountain 5 41S 7W 4045 22G5 Park Headquarters 8 315 6E 6550	1961a Hart Mountain 1 365 25E 6350 20610a Sherman Valley 15 37S 21E 6600
Upper Deschutes, Crooked	18F3 00FF 0 mm 0 mm		21021 Ulrich Ranch Junction 28 15 11E 3350 21030 Umbrella Falls 3 3S 9E 5400	22G11 Seven Lakes No. 2 26 335 5E 6200 22G2 5ilver Burn 30 305 4E 3720	Guano Lake
22F7 22F0 22F3 22F3 22F3 22F3 22F3 22F3 22F3	1854		Mile Creeks - Mosier Creek	22620 5iskiyou Summit 17 405 2E 4630 22632 Ski Bowl Road 22 405 1E 6000 2269 South Fork Canal 12 335 3E 3500	19Hl
225 21510	The state of the s		2106P Brooks Meadows 2 25 10E 4300	Umpquo River	HARNEY BASIN WATERSHED 1121
Loke County, 22721 22724 22724 22711 Goose Loke			21020 Knebal Springs 31 18 11E 3850 21021 Ulrich Ranch Junction 28 1S 11E 33S0	22F9 Champion 12 235 1E 4500 22F18P Oiamond Lake 29 27S 6E 531S	Silvies River - 5: ver Creek 18F7a
22F19 021F18 22F12	18760 18730		Lower Deschutes River 21012 Clear Lake 29 45 9E 3500	2368 King Mountain No. 1 5 335 4N 4800 2369 King Mountain No. 2 4 335 4W 4000	19F2
Rogue, Umpquo	166130 le6130		21022 Clear Lake Experimental 29 45 9E 3500 21E6 Hogg Pass 24 13S 75E 4755	23G10 King Mountain Mo. 3 33 325 4W 3648 23G11 King Mountain No. 4 33 325 4W 3049 23G12 King Mountain No. 5 29 & 28 325 4W 2380	19E9P Izee Summit 28 16S 29E 5293 18F1 Rock Spring 23 185 32E 5100
22030 - 22333 as 21020 - 22333 as 20020	olacz Owyhee Molheur 1661 1665		LOWER COLUMBIA WATERSHEDS 171	23G13 King Mountain No. 6 20 325 4W 1820 22F16 North Umpqua 19 265 6E 4215	19F1*
Klomoth 20018	e y Bosin,		8ull Run River 21033* Blazed Alder 5 25 8E 3650	22F25 Red Butte No. 2 30 27S NW 4000 22F25 Red Butte No. 3 30 27S NW 3500	Donner Und Stitzen River
220619 1022613 20061 20060 20061 20060 20061 20060 20061 20060 20061 20060 20061 20060 20061 20060 20061 20060 20061 20060 20061 2006000 20060 20060 20060 20060 20060 20060 20060 20060 20060 20060 2	015010		5ondy River	22F26 Red Butte No. 4 30 275 11 3000 22F27 Red Butte No. 5 20 27S 1W 2500 22F28 Red Butte No. 6 17 27S 1W 2000	18F6a
2363a 2263a 2004 2004 2004 2004 2004 2004 2004 200	170		21035 Mud Ridge 1 48 8½ 3800 21034 North Fork Reservoir 24 111 6E 3120 2108* Phlox Point 7 35 9E 5400	22F28 Red Butte No. 6 17 2/S 1W 2000 22F17 Trap Creek 1 275 4E 3800	19Gla Hart Mountain 1 36S 25E 6350 18G1PA Silvies 35 32S 33E 6900
20H / SON CONI		e15H2D	2108* Phlox Point 7 3S 9£ \$400 2109 Still Creek 2S 3S BEE 3670 WILLAMETTE WATERSHEOS 191	KLAMATH WATERSHEDS III	1867a "Y" Lake 31 35 \$ 324E 6600 Traul and Whilehorse Creeks
SNOW COURSES AND RELATED		He ISHI PISH PISH PISH PISH PISH PISH PISH	Clockomos River	22G6 Annie Spring 19 315 6E 6018	18G6a Denio Creek 14 41S 34E 5000 18H1 Disaster Peak (Nev) 8 47N 34E 6500
DATA MEASURING SITES		H6019H7	21013 Clackamas Lake 3S SS ByE 3400 21012 Clear Lake 29 45 9E 3500	22613P Billie Creek Divide 30 365 5E 5300 21F11 Chemult 21 275 8E 4760 32624* Cold Springs Camp 12 355 5E 6100	17G5a
OREGON State Copy Booking	16470	15H19,	21016 Lake Harriet 4 65 76 2045 21014P* Peavine Ridge 14 8 15 65 76 3500 2108* Phlos Points	20612a Crazyman Flat 9 345 15E 6100 20612a Crowder Flat (Cal) 30 47N 11E 5200 20612a Crowder Flat (Samit 3 295 6E 5800	Horney Loke
1	Values of Southern	3	2109 5till Creek 25 35 81-5 3670 21017 Timothy Lake 26 55 8E 3295	22F19 Ojamond-Urater Summit 3 273 6E 3000 21F18 Ojamond Lake Jct. (97) 1 295 7E 4600	18G8a Buckskin Lake 25 295 30E 5200
10 0 10 20 30 40 50 60 MILES Town State of the Company of the Comp	CONTRACTOR OF		Santiom River	Man and Index to OREG	ON SNOW COURSES
			22E1 Oetroit (City) 1 105 5E 1610 22E2 Detroit Dam 7 105 SE 1880	Map and Index to OREG	OIT OITO W COORSES



The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE Idaho Cooperative Snow Surveys Nevada Cooperative Snow Surveys Oregon State University Oregon Department Of Water Resources Soil and Water Conservation Districts of Oregon COUNTY Douglas County Water Resources Survey FEDERAL Department of Agriculture Cooperative Extension Service Forest Service Soil Conservation Service Department of Commerce NOAA, National Weather Service Department of the Interior Bonneville Power Administration Bureau of Land Management Bureau of Revlamation Fish and Wildlife Service Geological Survey Department of National Defense Corps of Army Engineers
PUBLIC UTILITIES Pacific Power and Light Company Portland General Electric Company California-Pacific Utilities Company MUNICIPALITIES City of Baker City of La Grande City of The Dalles City of Walla Walla IRRIGATION DISTRICTS Arnold Irrigation District Associated Ditch Companies Burnt River Irrigation District Central Oregon Irrigation District East Fork Irrigation District Grants Pass Irrigation District Hood River Irrigation District Jordan Valley Irrigation District Juniper Flat Irrigation District Lakeview Water Users, Incorporated Medford Irrigation District Middle Fork Irrigation District North Board of Control - Owyhee Project North Unit Irrigation District Ochoco Irrigation District Rogue River Valley Irrigation District South Board of Control – Owyhee Project Squaw Creek Irrigation District Talent Irrigation District Tumalo Project Vale - Oregon Irrigation District

Warmsprings Irrigation District PRIVATE ORGANIZATIONS

The Crag Rats, Hood River, Oregon

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